





VEGAN DIET

A question of values

More and more people in Germany are giving up food of animal origin. Their motives for doing so are both of an ideological and health-related nature. The BfR has researched the topic from different perspectives in several studies. What happens in the head – and in the body?





At first glance, vegetarian and vegan diets appear to offer health benefits: for example, there is discussion that physical complaints and diseases, such as obesity, high blood pressure, diabetes, and – especially in men – death from cardiovascular diseases, occur less frequently.

However, in today's society, nutrition is far more than just a necessary means of survival. The food we eat, where it comes from and how it affects our bodies is being discussed more passionately and contentiously than ever before. The BfR has approached the topic of a vegan diet from different specialist perspectives. The results allow an integral view of the completely “animal-free” diet with all its advantages and disadvantages. Both the perceived ones and the real ones.

All just a question of attitude?

Health is an important aspect, but there is more to it. “Eating also means enjoyment, lifestyle and identity; it is emotionally charged with moral, ethical and social issues that can influence what we eat and why,” says

PD Dr. Gaby-Fleur Böl, Head of Risk Communication at the BfR. Two studies in her department broach the issue of the attitudes and values of people following a vegan diet (see interview, page 12). The first looks at how a vegan diet is discussed on social media platforms like Instagram, Facebook and Twitter as well as in other places on the internet, such as forums or blogs.

For the second study, BfR social scientists interviewed more than 1,500 people in an online survey. They answered a total of 97 questions on their opinion, attitude and lifestyle. What unites the results of both studies are the recurring convictions and attitudes towards a vegan diet. The main motives for veganism involve health improvement, ethical considerations, such as animal husbandry, and ecological reasons, such as environmental protection and sustainability.

The counterargument to veganism most frequently mentioned on the internet and second most frequently in the large survey study is a very scientific one in essence: the insufficient nutrient supply, especially with children.



Serious deficiency: scientific data

What is the real situation when it comes to nutrient supply? What happens in the metabolism when we give up food of animal origin? Do vitamins and minerals come off badly when it comes to vegan food or is everything scaremongering? “For a long time, these kinds of questions in detail were a blind spot for science; there were only a few in-depth studies,” says Professor Dr. Cornelia Weikert from the Food Safety Department at the BfR. In 2017, her team started the comprehensive study project “Risks and benefits of a vegan diet (RBVD)” to tackle these and other open questions regarding the vegan diet of adults.

72 men and women aged between 30 and 60 took part in the study and were equally divided between two groups: one group followed a vegan diet for at least one year, the other regularly ate food of animal origin. The volunteers were measured and weighed, and had their blood pressure, waist size and BMI assessed. They also completed detailed lifestyle questionnaires in addition to a diet diary in which they recorded the weight of

their food and they donated blood, urine and stool samples for laboratory analysis.

The values show a mixed picture

Its findings contradict the fear of a general lack of nutrients in connection with veganism. Compared to a mixed-food diet, people who follow a purely plant-based diet do not have an ubiquitous deficiency when it comes to important vitamins and minerals. “The individual values showed that sometimes the vegan and sometimes the mixed-food group had an advantage,” says Iris Trefflich, a co-author of the study.

The vegan test subjects had lower values than the mixed-food group for the minerals zinc, selenium and calcium. Calcium deficiency in particular is considered to be a risk in a vegan diet due to the lack of consumption of products containing cow’s milk. Urine samples also revealed lower calcium excretion in one in three vegans. However, a general deficiency of the three minerals was not observed in the vegan group. This also applies to iron, of which the mixed-food volunteers



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It depends on the choice of food consumed.

Does food change our intestinal microbiota?

Around one and a half kilogrammes of diverse bacteria populate our body. A significant number of them is found in the intestinal microbiota. Does our diet influence our bodies' bacterial composition? Does the intestine adapt its "bacterial tools" to the pre-digested food that ends up there? In light of the scientific literature and analyses of stool samples, the BfR's conclusion is: no clear "vegetarian or vegan" intestinal microbiota can be identified based on previous studies.

There are exceptions

The German Nutrition Society (DGE) recommends that pregnant women, breastfeeding mothers, infants, children and young people should not follow a vegan diet. A sufficient supply of critical nutrients is particularly important for them. B₁₂ in particular should be taken as a permanent supplement. The BfR's surveys conducted in 2017 and 2020 show that respondents are not extensively aware of this health risk, especially with regard to children's supply (see interview on page 12).



Successful teamwork: head of the vegan diet study project Professor Dr. Cornelia Weikert (left) and co-author Iris Trefflich

had about the same amount in their blood. In both diets, about one in ten people had a deficiency. Vegans ingest significantly more iron in their diet; however, it can be harder to dissolve out of plant-based foods than animal-based ones. This is why not as much finds its way into the metabolism.

Vitamin B₁₂ is well supplemented, iodine is the problem child

A critical case is the trace element iodine – for both investigation groups. The majority of the participants had a deficiency. In the vegan group, almost everyone was affected, and what's more, their values were also significantly lower than in the mixed-food group – one third of the vegan group had values below 20 micrograms per litre (µg/L). Anything below this value is considered to be a severe iodine deficiency according to the World Health Organisation (WHO). This suggests that in mixed and especially vegan diets, it is even more crucial to ensure that a sufficient amount of this vital trace element is consumed. Since iodised table salt is notably found in industrially produced meat and dairy products that are not on the vegan menu, the BfR recommends obtaining a medical assessment as to whether ingesting iodine as a food supplement might be a possible solution.

Both groups were equally well supplied with vitamin B₁₂, often the most prominent nutrient when speaking about veganism and nutritional deficiencies. B₁₂, which is rarely contained in a plant-based diet, was taken by the vegans participating in the study via appropriate dietary supplements as an alternative source. Almost all the vegans and one third of the mixed-food group took different supplements. "As long as those following a vegan diet keep this supplement in mind, vitamin B₁₂ supply is guaranteed," says nutritionist Trefflich.

Vegans scored points with lower cholesterol levels (LDL and total cholesterol). Moreover, they ingested signif-

icantly more vitamin C, E and K as well as folate and fibre with their diet. The mixed-food group had the edge when it came to vitamins B₂, B₃ and D and also zinc.

Diet is only one element

The BfR has also investigated other issues in the RBVD study, such as whether lower inflammation values can be measured in vegans' blood. It is also still being analysed whether there are differences in bone health.

Since the RBVD study was comparatively small and the participants came from the Berlin area, the study results cannot be transferred to all adults in Germany. However, they do provide initial indications as to which nutrients require action. Further and more comprehensive studies are therefore needed to better answer questions about the health benefits and disadvantages of a vegan diet.

But which diet is better now? "With its many metabolic processes, the human body is very complex. Furthermore, a special need may exist," says Weikert, hinting not least to the situation of pregnant women, breastfeeding mothers and children (see infobox, page 10). Diet is an important factor for health, but not the only one. "Following a vegan diet can yield health benefits. But ultimately, as with a mixed-food diet, it depends on the choice of foods consumed and a balanced supply of macronutrients as well as vitamins and trace elements." Nutrition is – like so many things in life – often also a question of conduct, attitudes and values. ■

More information:

Weikert, C. et. al. 2020. Vitamin and Mineral Status in a Vegan Diet. *Dtsch Arztebl Int.* 117: 575-82.
DOI: 10.3238/arztebl.2020.0575

www.bfr.bund.de/ > FAQ: Iodine intake and the prevention of iodine deficiency